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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/427,600	10/27/1999	WILLIAM L. BETTS	061607-1240	3486

7590 11/05/2003

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EXAMINER	
JACK, TODD M	

ART UNIT	PAPER NUMBER
2133	

DATE MAILED: 11/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/427,600	Applicant(s) BETTS ET AL.	
	Examiner Todd M Jack	Art Unit 2132	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Holthaus.

Claim 19: Holthaus (6,229,897) teaches scrambling the audio content, which has been transformed to digital (col. 4, lines 21-25), a digital bit stream transmitted to a device (col. 5, lines 24-31), a pseudo random generator creating a stream of pseudo randomly generated digital bits (col. 4, lines 66-67 & col. 5, lines 1-2), digital bit stream (col. 5, lines 24-27), DSP scrambles the digital audio content (col. 4, lines 21-27), and the DSP removes any masking signal and unscrambles any scrambled audio (col. 6, lines 10-14).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of Doshi.

Claim 1: Holthaus (6,229,897) teaches scrambling the audio content, which has been

transformed to digital (col. 4, lines 21-25), a digital bit stream transmitted to a device (col. 5, lines 24-31), a pseudo random generator creating a stream of pseudo randomly generated digital bits (col. 4, line 66 to col. 5, line 2), digital bit stream (col. 5, lines 24 27), DSP scrambles the digital audio content (col. 4, lines 21-27), and the DSP removes any masking signal and unscrambles any scrambled audio (col. 6, lines 10-14). Holthaus fails to teach a non-self synchronize scrambling communication system. Doshi et al. teaches a cable modem is self-synchronizing. However, when a modem joins the network it must identify the first segment boundary in order to establish synchronization. A cable modem, which receives or processes erroneous data, may cause the receiver to lose synchronization. Therefore, a two-byte pointer field is incorporated at the end of each ATR2 within a subframe to provide for quick resynchronization with a segment boundary. This construction is an example of a non-self synchronizing scrambling communication system, which depends on a pointer field to establish resynchronization. It would have been obvious to a person having ordinary skill in the art to combine the teachings of Doshi's synchronization with that of Holthaus' scrambling in order that error propagation was reduced.

Claim 2, 6, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of that which is commonly known in the art. Claim 2: Holthaus fails to teach generating step further comprises deriving a set of symbol indices from the digital stream; and wherein the modifying step further comprises combining the symbol indices and the PNS to produce a symbol-wise scrambled digital data stream. A person having ordinary skill in the art would have

been motivated to use symbol indices in a scrambled digital data stream in order that there will be a secure transmission of text. This modification would have been obvious because a person having ordinary skill in the art would have been obvious because it would have been expected to transmit text to another individual in a secure manner in order that unauthorized individuals did not obtain the text.

Claim 6: Holthaus fails to teach the common timing reference is a whole or fractional multiple of the time interval between each symbol in the set of symbol indices. A person having ordinary skill in the art would have been motivated to use a common timing reference to track transmissions easier. This modification would have been obvious because a person having ordinary skill in the art would desire to have symbols spaced in a predictable manner in order to descramble the transmission.

Claim 24: Holthaus fails to teach the generating means further comprises means for deriving a set of symbol indices from the digital data stream and wherein the modifying means comprises combining the symbol indices and the PNS to produce a symbol-wise scrambled digital data stream. A person having ordinary skill in the art would have been motivated to use symbol indices in a scrambled digital data stream in order that there will be a secure transmission of text. This modification would have been obvious a person having ordinary skill in the art because it would have been expected to transmit text to another individual in a secure manner in order that unauthorized individuals did not obtain the text.

Claim 25: Holthaus fails to teach the common timing reference is a whole or fractional multiple of the time interval between each symbol in the set of symbol indices. A person having ordinary skill in the art would have been motivated to use a common timing reference to track transmissions easier. This modification would have been obvious because a person having ordinary skill in the art would desire to have symbols spaced in a predictable manner in order to descramble the transmission.

Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of Latka.

Claim 3: Holthaus teaches a generating step further comprises generating the PNS with an encryption algorithm. Latka teaches the use of a cryptographic algorithm to handle rolling codes (col. 3, lines 31-37). Rolling codes can be random noise or calculated bytes of data. It would have been obvious to a person having ordinary skill in the art to generate noise with an encryption algorithm in order that it was random and thus easily distinguished from the transmission for later decryption of the transmission.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of that which is commonly known in the art, further in view of Dewolf.

Claim 4: Holthaus fails to teach a common timing reference is a whole or fractional multiple of the time interval between each symbol in the set of symbol indices and the PNS. Dewolf (5,488,663) teaches a modulo-2 adder (col. 6, lines 49-58). The adder

may be used to combine the symbol indices and the PNS. It would have been obvious to a person having ordinary skill in the art to use a modulo-2 adder in order that the symbol indices and PNS could be scrambled together. The scrambling would encrypt the transmission.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of that which is commonly known in the art, further in view of Stocker.

Claim 5: Holthaus fails to teach a modifying step further comprises arithmetic adding of the symbol indices and the PNS. Stocker (5,235,645) teaches the combining of a pseudo-random number sequence with the data stream (col. 4, lines 27-40). It would have been obvious to a person having ordinary skill in the art to add the PNS and symbol indices in order that the transmission would be scrambled. A scrambled transmission would further secure the transmission from unauthorized reception.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of Romao.

Claim 7: Holthaus teaches a scrambled/masked audio analog signal, with sync information, for transmission over the communications network (col. 5, lines 41-43), and descrambling is accomplished (col. 6, lines 1-3). Holthaus fails to teach establishing synchronization between the scrambling step and the descrambling step and maintaining synchronous between the scrambling step and the descrambling step by means of a common timing reference, the common timing reference being distinct from

the series of bits and the bit transmission rate of the digital data stream. Romao (4,594,609) teaches horizontal synchronization pulses, which are periodic and properly positioned which provide a time based signal (col. 14, lines 44-62) and synchronization is time-based which is used during the unscrambling (col. 14, lines 44-62). It would have been obvious to a person having ordinary skill in the art to use synchronization as a means to maintain like transmissions. Transmissions must be synchronous in order that they are not distorted upon decryption.

Claim 8: Holthaus fails to teach a common timing reference is a whole or fractional multiple of the time interval between each symbol in the set of symbol indices. Butterfield (5,917,852) teaches the transmission of a signal in order to synchronize the timing of its transmissions (col. 5, lines 64-67). It would have been obvious to a person having ordinary skill in the art to transmit the symbols with an exact interval between each symbol to allow the decrypting and reading of the message. A constant interval allows for an efficient and quick processing without distortion.

Claim 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of Romao, further in view of that which is commonly known in the art. Claim 9: Holthaus fails to teach the scrambling step is performed in a first communication device located at an ingress point to a communication medium and the descrambling step is performed in a second communication device located at an egress point to a communication medium. It is commonly known to a person knowledgeable in

the art that scrambling and descrambling at an ingress point to a communication medium to secure the transmission for unauthorized viewers. It would have been obvious to a person having ordinary skill in the art to combine the teachings of that which is commonly known in the art with Holthaus so that encryption is performed at entrance and exit points in order that the transmission can be distributed to authorized users.

Claim 10: Holthaus fails to teach an established step comprises a training sequence allowing the user to learn how to use the communications system. It is commonly known to a person knowledgeable in the art that a training sequence allows the user to learn how to use the communications system. It would have been obvious to a person having ordinary skill in the art to combine the teachings of which is commonly known in the art with Holthaus so that the user possesses the appropriate skills to operate the system.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of Romao, further in view of that which is commonly known in the art and Stocker.

Claim 11: Holthaus fails to teach deriving a set of symbol indices from the digital data stream, generating a first pseudo-noise sequence, and combining the symbol indices and the first PNS to produce a symbol-wise scrambled digital data stream. It is commonly known in the art that symbols can be derived from a digital data stream for

the transmission can be read. It would have been obvious to a person having ordinary skill in the art to combine the teachings of which is commonly known in the art with Holthaus so that the user can read the text. Stocker (5,235,645) teaches the pseudo-random number generator outputs a pseudo-random number sequence that is combined with the data stream (col. 4, lines 25-34). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Stocker's pseudo-noise with that of Holthaus' secured analog voice communication in order that text can be read once placed in an encrypted transmission.

Claim 12, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of Romao, further in view of that which is commonly known in the art and Stocker.

Claim 12: Holthaus fails to teach a common timing reference is a whole or fractional multiple of the time interval between each symbol in the set of symbol indices and the PNS. Dewolf (5,488,663) teaches a modulo-2 adder (col. 6, lines 49-58). The adder may be used to combine the symbol indices and the PNS. It would have been obvious to a person having ordinary skill in the art to use a modulo-2 adder in order that the symbol indices and PNS could be scrambled together. The scrambling would encrypt the transmission.

Claim 14: Holthaus teaches converting the unmasked descrambled digital audio to analog (col. 6, lines 1-3),

Claim 15: Holthaus fails to teach a common timing reference is a whole or fractional multiple of the time interval between each symbol in the set of symbol indices and the PNS. Dewolf (5,488,663) teaches a modulo-2 adder (col. 6, lines 49-58). The adder may be used to combine the symbol indices and the PNS. It would have been obvious to a person having ordinary skill in the art to use a modulo-2 adder in order that the symbol indices and PNS could be scrambled together. The scrambling would encrypt the transmission. Stocker (5,235,645) teaches the pseudo-random number generator outputs a pseudo-random number sequence that is combined with the data stream (col. 4, lines 25-34). A person having ordinary skill in the art would utilize the Stocker teaching repeatedly to descramble the entire transmission. It would have been obvious to a person having ordinary skill in the art to combine the teachings of Stocker's pseudo-noise with that of Holthaus' secured analog voice communication in order that text can be read once placed in an encrypted transmission. It would have been obvious to a person having ordinary skill in the art to combine the teachings of that, which is commonly known in the art with that of Holthaus' secured analog voice communication in order that the entire transmission may be decrypted.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus, in view of Romao further in view of Stocker.

Claim 16: Holthaus fails to teach the combining step of subtracting the second PNS from the symbol-wise scrambled digital data stream. A person having ordinary skill in

the art would use the function of subtraction. The addition function completed earlier, it is necessary to subtract away the noise in order that a clear transmission is available to improve reading efficiency. It would have been obvious to a person having ordinary skill in the art to combine that, which is commonly known in the art to the teachings of Holthaus in order that the subtraction function removes the noise, thus improving the reading efficiency.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus, in view of Romao further in view of Stocker and Dewolf.

Claim 13: Holthaus fails to teach the combining step comprises arithmetic adding of the symbol indices and the first PNS. Dewolf teaches the output of the adder is coupled to an input of the shift register and the output of the shift register is coupled to an input of a modulo-2 adder. It would have been obvious to a person having ordinary skill in the art to combine the teachings of Dewolf's arithmetic adder to the teachings of Holthaus in order to make the message unreadable to an unauthorized individual.

Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus, in view of Romao further in view of Latka.

Claim 17: Holthaus fails to teach detecting loss of synchronization and the reestablishing synchronization. Latka (5,646,996) teaches the loss of synchronization (col. 2, lines 58-62) and reestablishing synchronization of those variables (col. 2, lines 60-62). It would have been obvious to a person having ordinary skill in the art to

combine Latka's synchronization functions with Holthaus' in order that the transmission system can maintain the ability to decrypt the synchronized encrypted transmission.

Claim 18: Holthaus fails to teach reestablishing comprises a retraining sequence. A person having ordinary skill in the art would utilize the retraining to allow the user to refresh his skills on the use of the communications system. It would have been obvious to a person having ordinary skill in the art to combine, that which is commonly known in the art to Holthaus' teachings in order that the user can be kept well trained and efficient at their task.

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stocker.

Claim 20: Holthaus fails to teach a means for transmitting the scrambled digital data stream. Stocker teaches that only scrambled data from a valid frame is transmitted by the scrambler (col. 4, lines 47-52). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Stocker's scrambled digital data with Holthaus' teachings in order to ensure the security of the transmission. Unauthorized access to the message would be prevented.

Claim 21: Holthaus fails to teach the generating means is an encryption device. Stocker teaches a scrambler, which accepts data in a single bit, serial format and retransmits it. The scrambler encodes data while forming the transmission. (col. 4,

lines 59-68) It would have been obvious to a person having ordinary skill in the art to combine the teachings of Stocker's encryption device generating encoded transmissions with Holthaus' teachings to produce encrypted data at the same time it is produced, thus eliminating the opportunity of an unauthorized access to the data.

Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view Dewolf.

Claim 22: Holthaus fails to teach modifying means is a modulo-2 adder. Dewolf teaches modulo-2 addition in the adder (col. 6, lines 49-58). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Dewolf's modulo-2 adder with Holthaus' teachings in order that scrambling of the data may occur.

Claim 23: Holthaus fails to teach modifying means is an arithmetic adder. Dewolf teaches an adder to scramble the data (col. 6, lines 24-33). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Dewolf's adder with the teachings of Holthaus in order that the transmission can be made more secure. A secure transmission prevents an unauthorized access to the data.

Claims 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of Stocker.

Claim 26: Holthaus teaches the converting of the analog signal to digital and scrambling the audio content, generating a masking signal, and combines the two (col.

4, lines 21-25 and col. 5, lines 24-31). A digital stream consists of bits of data. Holthaus fails to teach a second communication device having means for receiving and descrambling the first scrambled digital data stream, means for establishing synchronization between the first communication device and the second communication device, and the means for maintaining a common timing reference for the first communication device and the second communication device, the common timing reference being distinct from the series of bits and the bit transmission rate of the first digital data stream. Stocker teaches the scrambled data scrambled data is transmitted, the data is received, and descrambled (col. 4, lines 47-58), a sync-in and a sync signal output connected to a frame lock circuit to synchronize the transmission between two devices (col. 3, lines 4-27), and a sync signal is regained through a sync acquisition mode. Bit errors in the transmission can occur without disrupting the reception of the data (col. 5, lines 6-18). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Stocker's descrambling, synchronization, and maintaining of communications with Holthaus' teachings in order that the transmission can be converted to a readable format by the second communications device.

Claim 28: Holthaus fails to teach the means for establishing synchronization is a training sequence. Stocker teaches the use of a VAL-SYNC signal, pseudo-random number sequence, and a FRAME LOCK circuit to synchronize the transmission. The long sequences of static data are prevented, thus providing acceptable distortion of transmissions for a training sequence, which is a non-critical transmission (col. 4, lines

22-40). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Stocker's synchronized training session with Holthaus' teachings in order that the training sequence can be descrambled without any significant distortion.

Claims 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of Stocker, further in view of that which is commonly known in the art.
Claim 27: Holthaus fails to teach the common timing reference is a whole or fractional multiple of the time interval between each symbol in the set of symbol indices. It is commonly known in the art that a common timing reference which is a multiple of the time interval would make it much more easy to track transmissions. It would have been obvious to a person having ordinary skill in the art to combine, that which is commonly known in the art to Holthaus' teachings in order that the transmission was readable for an authorized individual.

Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of Stocker, further in view of Latka.
Claim 29: Holthaus teaches combining scrambled audio and masking symbol with intermittent sync data (col. 5, lines 39-43). Holthaus fails to teach a means for converting the first digital data stream from bits to symbols and a means for generating a first PNS. Stocker teaches a pseudo-random number generator to produce a pseudo-random number sequence (col. 4, lines 22-40). It would have been obvious to a person

having ordinary skill in the art to combine the teachings of Stocker's PNS generation with Holthaus' teachings in order that noise can be scrambled with the transmitted data to encrypt the transmission. Latka (5,646,996) teaches bits being rotated to form a new byte sequence, which is synchronized (col. 4, lines 22-33). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Latka's conversion of bits to bytes with Holthaus' teachings in order that the transmissions can be synchronized.

Claim 30: Holthaus fails to teach a means for converting the first digital data stream from bits to symbols. Latka (5,646,996) teaches bits being rotated to form a new byte sequence, which is synchronized (col. 4, lines 22-33). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Latka's conversion of bits to bytes with Holthaus' teachings in order that the transmissions can be synchronized.

Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of Stocker, further in view of Latka and Dewolf.

Claim 31: Holthaus fails to teach a common timing reference is a whole or fractional multiple of the time interval between each symbol in the set of symbol indices and the PNS. Dewolf (5,488,663) teaches a modulo-2 adder (col. 6, lines 49-58). The adder may be used to combine the symbol indices and the PNS. It would have been obvious to a person having ordinary skill in the art to use a modulo-2 adder in order that the

symbol indices and PNS could be scrambled together. The scrambling would encrypt the transmission.

Claim 32: Holthaus fails to teach modifying means is an arithmetic adder. Dewolf teaches an adder to scramble the data (col. 6, lines 24-33). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Dewolf's adder with the teachings of Holthaus in order that the transmission can be made more secure. A secure transmission prevents an unauthorized access to the data.

Claims 33, 34, and 36-46 rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of Stocker, further in view of Latka, Butterfield, and that which is commonly known in the art .

Claim 33: Holthaus teaches combining scrambled audio and masking symbol with intermittent sync data (col. 5, lines 39-43). Holthaus fails to teach a means for generating a second PNS, means for combining the second PNS and the first symbol-wise scrambled digital data stream to produce a first symbol-wise descrambled digital data stream, and a means for converting the first symbol-wise descrambled digital data stream from symbols to bits. Butterfield (5,917,852) teaches another separate scrambling pattern and a separate spreading code must be generated (col. 12, lines 51-54). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Butterfield's PNS generation with Holthaus' teachings in order that noise is available for use in scrambling the transmission. It is obvious to one somewhat

knowledgeable in the art to use the reverse algorithm used for scrambling to descramble the transmission by converting the data stream from symbols to bits. It would have been obvious to a person having ordinary skill in the art to combine the teachings of that, which is commonly known in the art, with that of Holthaus' teachings in order that the transmission can be descrambled. Descrambling of the transmission results in the production of a useable form of data.

Claim 34: Holthaus fails to teach a converting means is a symbol-to-bit converter. It is obvious to one somewhat knowledgeable in the art to use the reverse algorithm used for scrambling to descramble the transmission by converting the data stream from symbols to bits. It would have been obvious to a person having ordinary skill in the art to combine the teachings of that, which is commonly known in the art with that of Holthaus' teachings in order that the transmission can be descrambled. Descrambling of the transmission results in the production of a useable form of data.

Claim 36: Holthaus fails to teach combining an arithmetic subtractor. It would have been obvious to one somewhat knowledgeable in the art to subtract the noise in order that the transmission can be read. It is obvious to someone knowledgeable in the art to combine that, which is commonly known in the art with Holthaus' teachings (opposite of the addition) to improve the reading efficiency of the transmission.

Claim 37: Holthaus' fails to teach the synchronization is established between the scrambling means and the descrambling means by initializing the first generating means and the second generating means with the same predetermined value. Stocker teaches the use of a VAL-SYNC signal, pseudo-random number sequence, and a FRAME LOCK circuit to synchronize the transmission. The long sequences of static data are prevented, thus providing acceptable distortion of transmissions for a training sequence, which is a non-critical transmission (col. 4, lines 22-40). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Stocker's synchronized training session with Holthaus' teachings in order that the training sequence can be descrambled without any significant distortion.

Claim 38: Holthaus' fails to teach a second communication device further comprises means for scrambling and transmitting a second digital data stream and wherein the first communication device further comprises means for receiving and descrambling the second scrambled digital data stream. Butterfield teaches the scrambling of the data stream and its transmission as well as descrambling (col. 10, lines 38-58). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Butterfield's scrambling and descrambling with Holthaus' teachings in order that two communication devices can interact.

Claim 39: Holthaus fails to teach the first communication device and the second communication device operates bidirectionally. Butterfield teaches a subscriber unit

transmits a signal on a reverse link in order to synchronize the timing of its transmissions to the RBU and to perform bi-directional communications (col. 5, lines 64-67). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Butterfield's bi-directional communications with Holthaus' teachings in order that two communication device can interact and facilitate the exchange of information. This exchange of information is essential to the users wishing to communicate.

Claim 40: Holthaus teaches a means for combining the symbols and the second PNS to produce a second symbol-wise scrambled digital data stream. Holthaus fails to teach a means for converting the second digital data stream from bits to symbols, means for combining the first PNS and the second symbol-wise scrambled digital data stream to produce a second symbol-wise descrambled digital data stream, and the means for converting the second symbol-wise descrambled digital data stream from symbols to bits. Latka (5,646,996) teaches bits being rotated to form a new byte sequence, which is synchronized (col. 4, lines 22-33). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Latka's conversion of bits to bytes with Holthaus' teachings in order that the transmissions can be synchronized. Butterfield teaches a scrambling pattern provided to the data input of a flipflop and to exclusive OR gates (col. 12, lines 55-57). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Butterfield's production of a second symbol-wise descrambled digital data stream with Holthaus' teachings in order

to descramble the transmissions. Descrambled transmissions can be utilized by a user/receiver. The descramble procedure is just the reverse of the scramble procedure. It would have been obvious to combine the teachings of a person having ordinary skill in the art with Holthaus' teachings by descrambling the transmission in a manner, which converts symbols to bits.

Claim 41: Holthaus fails to teach the first communication device is a Digital Subscriber Line Transceiver Unit-Central Office and the second communication device is a Digital Subscriber Line Transceiver Unit-Remote (DTU-R). Butterfield teaches subscriber units transmit a signal to the radio base unit and perform bi-directional communications (col. 5, lines 64-67). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Butterfield's communication units with Holthaus' teachings in order that the equipment necessary for communications exist.

Claim 42: Holthaus fails to teach the scrambling means in the second communication device begins scrambling the second digital data stream substantially simultaneously with completion of descrambling of the first scrambled digital data stream by the descrambling means in the second communication device. Butterfield teaches the scrambling of the data stream and its transmission as well as descrambling (col. 10, lines 38-58). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Butterfield's scrambling and descrambling with Holthaus' teachings in order that two communication devices can interact.

Claim 43: Holthaus fails to teach a plurality of additional DTU-Rs having the same capabilities as the second communication device. Butterfield teaches Butterfield teaches subscriber units transmit a signal to the radio base unit and perform bi-directional communications (col. 5, lines 64-67). It is common to have more communication units in a network to facilitate the wide spread mass communications. It would have been obvious to a person having ordinary skill in the art to combine the teachings of Butterfield's communication units with Holthaus' teachings in order that the equipment necessary for communications exist.

Claim 44: Holthaus fails to teach the substantially simultaneous completion of descrambling of the first digital data stream and the beginning of scrambling of the second digital data stream comprises using the state of the second PNS generator at the time of completion of the descrambling as the initial state of the second PNS generator for scrambling the second digital data stream. Butterfield teaches the scrambling of the data stream and its transmission as well as descrambling (col. 10, lines 38-58). It would have been obvious to a person having ordinary skill in the art to combine the teachings of Butterfield's scrambling and descrambling with Holthaus' teachings in order that two communication devices can interact.

Claim 45: Holthaus fails to teach the first communication device further comprises a FIFO register to store previous states of the first PNS generator. It is obvious to one

somewhat knowledgeable in the art to store previous states in order to not reuse those states often, thus allowing the system to be vulnerable to unauthorized break-in. It would have been obvious to a person having ordinary skill in the art to combine the teachings of that, which is known in the art with Holthaus' teachings in order that the security of the transmission is increased.

Claim 46: Holthaus fails to teach a means for delaying the second PNS wherein the combining means combines the delayed second PNS and the symbols to produce the second symbol-wise scrambled digital data stream. Butterfield teaches a data input of flipflop and to inputs of exclusive OR gates, the clocking signal is applied to the trigger or clock input of flipflops (col. 12, lines 55-57) and the baseband combiner combines all in-phase signals. It would have been obvious to a person having ordinary skill in the art to combine Butterfield's combining of second signals with Holthaus' teachings in order that a second transmission can be made. This second signal may be used to transmit additional information or information to a second receiver.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holthaus in view of Stocker, further in view of Latka, Butterfield, and that which is commonly known in the art and Dewolf.

Claim 35: Holthaus fails to teach the combining means is a modulo-2 adder. Dewolf teaches scrambling by means of a modulo-2 adder (col. 6, lines 49-58). It would have been obvious to a person having ordinary skill in the art to combine Dewolf's modulo-2

adder with Holthaus' teachings in order that the transmission may be scrambled. Scrambling is necessary to ensure unauthorized reception of the message.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Todd M Jack whose telephone number is 703-305-1027. The examiner can normally be reached on M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady, can be reached on 703-305-9595. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

Todd Jack
October 5, 2003

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